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THESIS.

The Marketing Of Farm Produce
With An Especial Reference to
New York City Markets.

BY

CHARLES HENRY FUCHS

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INTRODUCTION.

This paper contains data collected from reference books and talks with commission men in New York and Baltimore markets. The references are as follows:-

"Report of The Mayor's Market Commission
of New York City."

"The Marketing of Farm Products"-----Weld.

"Report on Market System for New York City
and Open Markets Established in Manhattan."

"United States Department of Agriculture,
Bulletins Nos. 266-315-267-and-290."

"1914 Year Book of Department of Agriculture.
Article on 'Retail Public Markets' by
G. V. Branch."

Talks with salesmen at the establishments of:-

Bernard Abel Co., Inc.	N. Y. C.
George Allison & Co.,	N. Y. C.
H. G. Miles & Co.,	N. Y. C.
Peter McClees,	N. Y. C.
T. H. Evans & Co.,	Balto.

This paper does not make an exhaustive study of the marketing of farm produce, but deals only briefly with the methods of handling produce from producer to consumer and touches only on the important points. The subjects discussed are so broad that a book of many thousand words could be written on any one of them.

This paper covers only the important points of the marketing of farm produce with the idea that it may serve as the basis, to the man with initiative, of further research and study.

Another idea is that the paper may be of some use to the busy farmer, who has neither time, nor the necessary training, to search among the many reference books and bulletins to find the few fundamental truths desired.

The subjects follow:-

1. General Definitions of Markets.
 2. Methods of Marketing Farm Crops in New York City.
 3. Methods of Distribution.
 4. Prices.
 5. Refrigeration.
 6. Grading and Packing.
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1. General Definitions of Markets.

The word market may be, and commonly is, used to designate a place used by a number of independent sellers as a sales place, such as Harlem, Wallabout Markets in New York City etc., or somewhat more collectively as the markets of a city as a whole, as the New York Market, the Philadelphia Market, or still more collectively as foreign markets, domestic markets, etc.

In this thesis the word market will be used in the sense of a sales place used by a number of independent sellers.

In the most primitive type of selling, the quantity and - quality of the goods sold, had to be carefully examined and the money offered in exchange had to be just as carefully scrutinized. There was thus a necessity for an actual meeting of the principals or their responsible agents.

With the meeting of more buyers and more sellers there was more opportunity for each seller to dispose of all he wished to sell and more opportunity for each buyer to secure what he wished to buy, and thus markets tended naturally to continue to increase in size, until the distances which the more remote buyers and sellers had to travel became prohibitive. Each buyer brought his money, each seller his goods and thus exchange was effected on the spot.

If all the sellers had different commodities, or distinctly different varieties of the same commodity for sale, there would be no need for the establishment of a market price for any commodity. Each seller could establish his own price, and if the buyer had to have his commodity they would have to pay his price. But where a number of

sellers having the same commodity meet a number of buyers, who will buy heavily if the prices are low, less if higher, and not at all if in their judgment too high, and each of whom desires to buy at least as cheaply as any of the others, a set of prices is established for the different grades of the various commodities by a process of offers and refusals, which prices hold perhaps only momentarily, increasing or decreasing with the arrival of fresh demands and fresh supplies. But it is only when by this process of offers and refusals that the buyer has tried out the sellers that the buyer feels that he is sufficiently informed to trade to advantage, or that the seller, from repeated refusals and no trading, learns that his price is too high to enable him to sell sufficiently or at all.

Requirements for any market.-----

- (a) Means whereby all those who wish to buy can freely and easily communicate with all those who wish to sell.
- (b) Means whereby all goods and the equivalents therefor offered may be inspected and tested for quantity and quality.
- (c) Means whereby all goods sold may be delivered and the equivalents therefor collected.
- (d) Means whereby the demand acting on the supply can establish temporarily a uniform scale of prices for the different grades of the various commodities.

Additional Requirements for a Provisioning Scheme:-----

Any market is, to some extent, a provisioning scheme, for, by the facilities for trading which it furnishes, it naturally and without premeditated action in this direction on the part of any of the persons concerned draws to itself commodities from quite distant producing areas.

When, however, a number of markets draw on the same producing areas there comes a time when by some premeditated action on the part of those concerned it becomes necessary to furnish.

- (e) Means for averaging the supply so that oversupply and consequent waste shall not exist at some points and deficiency with consequent high prices at others.

There is for each of the different classes of consumers served by any market, depending upon their wealth, some limit of price which they can afford to pay for any commodity.

As prices get higher and higher they refrain more and still more from the use of this commodity, and as prices lower they use this commodity more and still more freely, often to their benefits. It is not therefore sufficient merely to have the market supplied with the various commodities, but it is necessary to supply the markets at prices which the consumer can afford. This gives rise to the further requirements of a provisioning scheme

- (f) Means for lowering the cost of the various commodities to the final consumer by the elimination of unnecessary expense and waste.
- (g) Means for the stimulation of low-priced supplies by the removal of the uncertainties which have made the marketing of such supplies over-hazardous for the producer.

THE WHOLESALE MARKET.----

Generally speaking, all who "buy to sell again" are considered entitled to buy at wholesale. There is, therefore, among these buyers more diversity in the size of the single purchase than there is among the consumers.

Producing conditions require that a crop be grown in large quantities of a sort, and shipping conditions often require still further

aggregation. Few retailers buy in as large quantities as the producer has ready to market at a time, and still fewer retailers buy in as large quantities as those in which the shipment really come to market.

Some retailers when buying in market prefer to go from stand to stand, buying the whole or part of their day's supply of one article in one place, and of another in another; others prefer to buy a large portion of their day's supply in the one place. It comes about thus that the wholesalers who sell to retailers seldom handle one article exclusively, and that each has, therefore, a tendency to handle unaided only the smaller shipments. To distribute the larger shipments among the various wholesalers and jobbers the services of a group of men sometimes known as receivers or as brokers are found desirable. These men sell large quantities and can therefore perform their service without adding much to the cost of the goods.

Goods for which standard gradings have not been so well established are sold by grade, subject to inspection at delivery.

The cost of this service is generally somewhere about 2 per cent of the sales price, charged as in the case of potatoes at a fixed price per bu. (at present about 1 cent per bushel), and in case of canned goods at 2 per cent of the sales price.

Sales are made in this way generally to jobbers or wholesalers, who buy the goods outright and then sell them again to the retailers, making for themselves what profits the prevailing market price at the time of these sales permit.

Hence, since, before the development of efficient means of transportation, cities were largely dependent on goods grown in close proximity, and these goods were commonly sold by producers to consumers

in central market places, or by peddling from house to house. As cities have grown, not only have near-by farmers found it convenient and necessary to sell to a class of wholesale middlemen but also with the development of transportation facilities, goods shipped in great quantities from outside points have also required the development of wholesale marketing systems.

PUBLIC MARKETS.-----

The term "public markets" is used in a variety of senses, as, for example, the market place where farmers congregate to sell to consumers, or where they sell to retail and wholesale buyers, or the market place where retail dealers instead of farmers have stalls. The form that most people have in mind is the market place to which farmers bring their goods and where they sell directly to individual consumers, and this is the form that we are so frequently told should be developed. Some of the advantages of such direct sale frequently mentioned are as follows:-

- (1) By eliminating all middlemen the farmer can get higher prices for his products, and the consumer can buy at lower prices;
- (2) Consumers can buy goods that are freshly gathered;
- (3) The lower prices that farmers charge have the effect of keeping down prices in retail stores throughout the city;
- (4) The opportunity afforded to farmers stimulates output and tends to a greater adaptation of local farming methods to city needs.

As a matter of fact, it is well known that public markets where farmers and consumers come together are on the whole unimportant as agencies of city food distribution. There are several reasons for this:-

- (1) Farmers cannot afford the time to remain at the market place for a large part of the day to sell to consumers,

and consequently they prefer to sell out to retail store buyers and wholesalers as quickly as possible, and return to their farms;

- (2) Consumers in general cannot afford the time necessary to visit the market, either because of household duties (including the care of children) or because of social interests;
- (3) Only an infinitesimal part of the food supply of a large city can be produced within hauling distances;
- (4) They can be in operation for only part of the year;
- (5) The competition of public markets, although it offers some protection against extortionate prices of retail stores, cannot have so much effect in this direction as one might think because consumers are willing to pay for the superior service furnished by retail stores.

The considerations need to be enlarged upon. That farmers do not care to spend the time necessary to remain at market during the day is evident from the experience of practically all of our large cities. The great bulk of the commodities brought in by farmers is sold to retail store buyers and jobbers who congregate at the market in the early morning and buy the goods in wholesale quantities. The market places open as early as two or three o'clock in the morning in the largest cities; farmers living at a distance frequently leave their farms the evening before. Most of the big truck farmers have sold out and are on their way home before city consumers are ready to do their marketing. It is of course true that in practically all cities some farmers stay in the market to sell to consumers, and that this practice is more prevalent in some cities than in others. This undoubtedly ought to be encouraged, but the indications are that it can never be developed on a large scale--or rather restored---because this was the custom once, and during the past few decades the tendency has been distinctly in the opposite direction.

11. Methods of Marketing Farm Crops in New York City.

The marketing system of N. Y. C. may be briefly outlined and its greatest defects indicated as follows:-

(1) Food supplies are brought to the city for---

1. A resident population of over 5,000,000.
2. A transient and commuting population numbering many thousands daily.
3. The provisioning of outgoing steamships and trains.
4. Export to other cities and towns.

It is estimated that the value of the foodstuffs brought to New York City annually is \$900,000,000.

- (2) Most of New York's food supplies are brought by railroads and steamship and come over great distances.
- (3) The farming districts around the city is not great enough or varied enough in its productivity or producing in long enough seasons to supply the needs of the city in any line. Suburban developments are all the time pushing the farm lands farther and farther away. It is impossible to alleviate conditions by establishing markets for producers to sell to consumers.
- (4) New York City has no modern wholesale market. Supplies are received at many points, chiefly at the lower end of Manhattan Island, are sold sometimes at the terminals and sometimes at the stores of the dealers, and thence must be trucked all over the city and out to suburban places.
- (5) The terminals in the city where food products are brought in are entirely those provided by the transportation lines and are not sufficient to handle the volume of business that passes through them, in the right way. There is a great deal of congestion of trucks and wagons, causing delay in moving the goods, and insufficient means of protecting the goods from the weather and from extremes of temperature. Proper inspection is difficult.
- (6) There is no supervision of marketing on the part of the city as there is in foreign cities and in some cities of our own country.

A hundred and fifty years ago the perishable farm products used in the city all came from nearby farms--there were no means of

bringing them over greater distances. When Washington Market was built in 1812 it was a place where the farmer brought his goods and sold them to the people. To-day conditions are more complex and the means of establishing a direct route between producer and consumer less obvious, but public interest in the matter and public provision of the right kind of market is not less important.

To-day the development of railroad and steamship has brought the farms of South Carolina and Kansas as near New York City as were those of Long Island and Westchester County one hundred years ago. It has removed any limitations on the growth of the city imposed by the difficulties of getting an adequate food supply, and, as a consequence, the city has grown until it is dependent upon the production of a very wide area for its continued existence.

The commonest articles of food are often brought great distances : potatoes, for instance, are brought to New York market from Maine, from the Western States, from Bermuda, Scotland, Ireland, and Belgium; onions, from the South-----Virginia, South Carolina, and Texas, from the Western States, and from Italy and Spain; green vegetables of all kinds are brought from nearby farms and in very large quantities from the South and West---in the flush season one railroad bringing over 300 carloads a day, and one steamship line running two steamers daily in the busy season between New York and Virginia; oranges and grapefruit come from California and Florida, the West Indies and Mediterranean ports; apples, from New England and New York, the Middle West, Oregon and Washington; cauliflower comes in the early season from Cape May and later from Long Island; melons from California, Colorado and the South; bananas, from the West

Indies and South America, and so on.

Under these conditions it is impossible for marketing to be carried on to any great extent directly between producer and consumer. An army of middlemen are engaged in collecting, grading, shipping, and distributing the farm produce used in the city, and, though they have been accused of dishonest practices, and sometimes justly so, it is likely that a considerable evolution in marketing methods will have to take place before their services can be dispensed with. They perform labor that individuals consumers could not perform for themselves without expense far greater than the middlemen impose. That is not to say, however, that products do not often pass through too many hands and have too many increments added to their prices.

The men who handle the farm products between the farm and the New York City consumer may be classified roughly as: (1) shippers, (2) commission merchants and wholesalers, (3) jobbers, (4) retailers.

The ways in which goods are collected and shipped to market vary greatly. Many of the farmers nearby drive themselves with their goods and sell to jobbers and retailers in the few market squares provided by the city. Those who are too far away to do this may be in touch with some merchant in the city and ship to him, or they may sell to a collect-agent or to a country storekeeper who acts as a collecting agent and ships goods to merchants in the city. Many commission houses employ agents to go through the country districts and buy from the farms. The prices they give are apt to be low, but the farmer often prefers a cash sale at a low price to the risks of sending goods to a distant market on his own responsibility. Many commission houses also employ men in the

country to grade, pack, and ship the goods thus collected from the farmers, as the farmers are often quite as unreliable in grading and packing their goods as the middlemen are reputed to be in selling them. Many farmers specialize in certain products so that they may ship in carload lots to commission merchants or wholesalers.

Recent years have seen the formation of a great many co-operative associations of producers. When the farmers of a district all raise more or less of the same products they unite in an association to take charge of the grading, packing, shipping, and marketing of their goods. They do not eliminate the middleman, but they eliminate his profits. They employ him and pay him a fixed salary for his service and return to their members any surplus that accrues over the expense of the association. Such an association well managed is the best protection the farmer can have. By its size and importance it inspires respect, and, by establishing a uniform system of grading and marking goods that is known and trusted, it protects its members from the worst enemy they have, the dishonest farmer, who, by fraudulent packing, destroys the confidence of buyers that goods will be well represented. Many of these associations keep in constant touch with conditions in all the large markets of the country and, after shipments are on their way, divert them by telegraph at intermediate points from their original destination to other cities where the markets promise better prices.

The largest receivers in the city are the commission merchants or wholesalers who receive goods on consignment or sale and sell to jobbers and sometimes retailers. There are something over 500 men engaged in the commission business in this city. In general, they charge

a commission of ten per cent on sales. All sorts of malpractices have been attributed to them, such as reporting goods are received in bad condition when they really have arrived in good condition, holding back goods in the freight yards to keep prices high, reporting sales as made at the day's low figure when they were really made at a higher, charging higher rate for cartage to shippers than they paid the truckmen etc. Enough of these things have been endured by the shippers to cast suspicion in their minds upon the whole group. The enactment of protective measures and greater publicity of market conditions should do much to remedy the situation. Such measures should be welcomed by those who are seeking to do an honest business, unless they throw an unfair burden on the trade.

Advanced legislation has been enacted in this line in some of the Western States, notably Minnesota, and a beginning has been made in New York in the bill passed last year requiring the registration of all commission merchants and the giving of a bond of \$3,000 to ensure fair dealing. This gives greater protection to shippers than they have had before, but it throws the burden entirely on the commission man, whereas the standards of honesty among shippers have not always been found to be above reproach. It would seem to be no more than fair to provide for a similar registration of shippers with the State of ^{or} National Bureau of Agriculture, and the establishment of standard requirements for the grading of farm produce. Shippers could then be held accountable to such Department of Agriculture for false marking of goods, and, in time, the shipper's registry number or identification mark on a package would come to be recognized as a guarantee of quality. Such measures increase

business confidence.

It is impossible for the large wholesale dealers and commission men in the city to conduct their businesses on such a scale that they can divide up their goods into small enough lots to sell to the ordinary small retailer. For this reason an intermediate group of middlemen has arisen, known in the New York market as jobbers, who perform the next step in the dividing and distributing process. Goods sometimes pass through the hands of three or four such dealers before reaching the retailer. They sell to hotels and to fruit and vegetable dealers in the outlying districts who cannot take the time necessary to buy in the primary markets, to go from place to place and select just the right grade of goods for their trade, and many of whom cannot take goods in large enough lots to buy as the commission dealers must sell. Some deliver at their stores to the retailers' wagons, some make deliveries by their own or hired trucks, and others drive around from store to store and sell to grocers and vegetable men. The Harlem Market in Manhattan contains, in addition to the farmers' market, a jobbers' market, and is the base of supplies for many dealers in upper Manhattan and The Bronx, as it is the nearest market where they find any considerable variety. There are also some jobbers and some direct receivers in The Bronx. In Wallabout Market, where most of the Brooklyn merchants get their supplies of perishable goods, the dealers are jobbers for the most part, who buy from the large receivers in Manhattan---in some cases Long Island produce that has been taken into Manhattan for its first selling and then brought back---and at the Brooklyn terminals.

We have retail stores of various types: large markets carrying

meats, groceries, fruits, and vegetables; chains of grocery stores and individual grocers, butchers, dairy stores, fruit and vegetable men, and delicatessen stores. Of late years there has been a considerable increase in the number of small neighborhood stores, and, while the system makes necessary some duplication of overhead expense and service, they are a great convenience to the majority of buyers and are so regarded. So many people live in small apartments where there is no space to store supplies for more than a few day's consumption that they must buy often and in small quantities, and, to save time, nearby. The convenience and personal service of these small stores outweigh many advantages that the large markets offer. The main advantage of the large retail market now lies in its ability to buy cheaply in large quantities. If the small retailer can have access to a terminal market where he can buy goods before they have passed through two or three hands, and can learn to combine with other retailers in buying, he will be able to compete, not only in service but in price, with the large retail market. There has been an increase in the number of small neighborhood stores which deal in a few articles and sell their stock every day or two. This approximates the practice of the pushcart dealer, who is the cheapest retailer in the trade .

III. Methods of Distribution.

In New York there are large markets for many commodities--such as the Produce Exchange, the Stock Exchange, the Wool Exchange, and the Cotton Exchange--but there is no Food Exchange. The New York market for fresh produce is not centered in any one place, except in the case of a few products, such as California fruits which are marketed on the Erie piers. The idea of a large central market where the maximum of

products and the maximum of buyers can meet does not obtain in the provisioning of the city: the business is conducted on a minimum basis, every dealer buying only the goods which he can dispose of to customers with whom he comes in personal contact. The primary food market of the city comprises a large district in lower Manhattan, containing the terminals of railroad and steamship lines bringing food to the city, and the warehouses and stores of dealers of all kinds, and a few scattered terminals in the outlying boroughs, where a limited number of products are received and marketed. Then there are various secondary wholesale distributing points or "jobbing" markets, such as Harlem Market at East 102d St. for garden produce, Westchester Avenue and German Place in the Bronx for meats, butter, eggs, cheese, and some produce; and Wallabout Market in Brooklyn for all kinds of produce. Distribution in the city is effected by a series of makeshifts. Where it is possible marketing is conducted on the piers and terminals, and so in places there is the germ of the terminal market idea, but the terminals, as a rule, have not been constructed with this purpose in view and are by no means adequate for the amount of business that must be done. The only public market there is in Manhattan which is in any sense a terminal market is West Washington Market, but it has connection with only one railroad.

The city's food supplies are brought in chiefly by the following agencies:-

(1) Nine railroads: the New York Central, the N. Y. New Haven and Hartford, the Pennsylvania, the Erie, the Baltimore and Ohio, the Delaware, Lackawanna and Western, the Lehigh Valley, the Central Railroad of New Jersey, and the Long Island Railroad.

(2) Twenty-three steamship lines docking along the Manhattan waterfront, including the Old Dominion Line, the Clyde Line, and others.

Twenty-two steamship lines docking along the Brooklyn waterfront.

(3) Wagons from farms within a radius of forty miles coming to Gansevoort and Harlem Markets in Manhattan and Wallabout Market in Brooklyn. In the busiest season between 200 and 300 farm wagons come daily to Gansevoort and Harlem Markets each, and something over 400 to Wallabout. The amount they can bring seems inconsiderable when we consider that one railroad alone averages 100 carloads a day of food products the year round, and in the producing season brings between 300 and 400 carloads of produce daily to the market. The great expense of wagon transportation as compared with rail is a factor also that must be considered.

The New York Central Railroad is the only one whose tracks reach the Manhattan Market District. The New Haven road comes into The Bronx, and the Long Island road into Long Island City; and both these have receiving piers in Manhattan on the East River. Marketing of a few products is done at the New Haven terminal in The Bronx and at terminals of the Long Island Railroad in Long Island City and Brooklyn. The other railroads have their terminals on the Jersey shore of the North River (except the Baltimore and Ohio in Staten Island), and maintain receiving piers in Manhattan on the North River to which loaded cars are brought on floats. They have, however, no trackage facilities at these points. These roads also make carfloat deliveries where required, at terminals in The Bronx and Brooklyn. The Pennsylvania Railroad brings the greatest quantity of perishables to the city, its piers, Nos. 27, 28 and 29 forming a wholesale market for vegetables and fruits. The Erie brings in 95 per

cent of the California fruit coming here, which are sold at their piers at public auction. Live poultry is brought by other roads and very largely by the Delaware, Lackawanna and Western, the latter road making a specialty of improved cars for this business.

The goods that are brought over by these roads on carfloats are unloaded from the cars onto the piers and in many cases are sold there by the consignees and taken away by the buyers---jobbers and retailers. Otherwise they are trucked away by the consignees to be sold at their stores. This is an efficient way of doing business---that is, ^{as} it is/efficient a way as the business can be done under the present conditions---but the space on the piers is insufficient to accommodate buyers, sellers, goods and trucks without great delays, which cause expense and considerable spoilage of goods, because the construction of the piers is, in most cases, not such as will protect the goods during the long delays from harmful temperatures and other bad weather conditions and the city has now grown too great in size to depend on a primary market in only one borough. In seasons when the receipts are heavy it not infrequently happens that the congestion at the Manhattan terminals will hold back carloads of goods in the Jersey yards for days before they can be discharged for sale. Sometimes they are held back until they spoil and are total loss to producer and consumer. There are now no markets organized in such a way that they can take this excess. This condition indicates how important it is to have satisfactory terminals as feeders for the retail markets of the city. A great saving and much more rapid movement of goods would be effected if the city had a system of terminal markets where loaded cars could be taken off of the floats and run into

the market buildings, where the goods could be sold directly from the cars and delivered to the buyers with only one handling, and where goods shipped in refrigerator cars could be unloaded directly in favorable temperatures.

The present primary market in Manhattan is too congested and too far away from the rapidly growing outlying boroughs to be the base of supplies for the greater percentage of the retailers of the city. The time and labor of going to this market are too great and the dealers are forced to buy from the nearer jobbing centers. This lengthens the chain of middlemen and makes much trucking necessary. It is estimated that there are, on an average, over 1,000 trucks working in the market district daily, and that a truck must earn \$7 a day to pay for itself. This alone imposes a daily tax on our food supply of \$7,000 which does not include the cost of all the grocer's wagons that make daily trips of from 2 or 3 to 15 miles to reach the wholesale market.

Wallabout Market is an important distributing center for Brooklyn, but the lack of facilities for receiving consignments of freight prevents it from being more than a secondary market. Much of what is sold there is brought from Manhattan by truck and marketing is not done on the docks that they have. Trackage into the market would eliminate one extra handling of goods as well as facilitate the entrance of more goods and so encourage shippers to consign there.

Harlem Market at East 102d St. is centrally located for a vast population. It is the base of supplies for most uptown Manhattan and Bronx retailers. This is a privately owned market to which farmers come, chiefly from Long Island, crossing the 99th Street ferry from College

Point. The charges for market wagons are somewhat higher than in Gansevoort Market, but quite as many farmers go there because the long haul down town is saved. The market has no connection with any railroad or other transportation lines. In the Harlem Market itself most of the produce comes in by the farmer's wagons, but there has grown up in that immediate neighborhood a large center of produce commission men who get their produce in the usual way----by wagon from down town.

There is no distributing market whatever for the Borough of Richmond, though the presence of the Baltimore and Ohio terminal at St. George should make it easy to develop one. At present there are not even means to distribute to the dealers of the island the part that they need of what the island itself produces, more than is provided by the private transactions between individual growers and retailers. Beyond one or two commission men there, there are no means for wholesale distribution. It is impossible for the railroad to develop the car-lot business there without a terminal market to dispose of the goods. Wagons from the farms come up by the ferry to Gansevoort Market, and the retailers come up to the same district to buy. It is not unlikely that they sometimes buy Staten Island Produce and truck it back again. They must, of course, buy in a market where there is variety enough to supply their needs.

The Borough of the Bronx is the most rapidly growing borough of the city and it has much undeveloped territory. Marketing facilities for this part of the city and for the communities to the north that draw their supplies from the New York market are almost non-existent. Two important railroads--the New York Central and the New York, New Haven and Hartford---run directly into the borough and have large terminals

there, and the New York Connecting Bridge, just completed, will bring in trains from the Penna. system, but there is no modern market there where a dealer can find any variety of supplies. The New Haven has a small market building with 22 compartments at its terminal at 132d St. and Lincoln Avenue, but this road brings a limited number of commodities and the chief trade at this point is in Maine potatoes. The New York Central permits marketing from the cars in its Melrose yard at 158th St. and Morris Avenue and a considerable variety of produce is to be found there. At Westchester Avenue and German Place there is a small aggregation of commission dealers and branches of the meat packing houses, but nothing that constitutes a modern market. The dealers for the most part draw their supplies from the jobbers and wholesalers in Harlem and Gansevoort Markets, and from these points all goods are trucked out to the borough. Even fish, which is brought down through the borough in large quantities by the New Haven road, is all lightered from the railroad terminal to the Fulton Market district and there sold at wholesale, and what is used in the Bronx must be trucked up from there. Produce brought down by the New York Central is also taken **through** the borough down on the west side tracks to the Gansevoort Market district, and anything used in The Bronx must be taken back by truck. Several other railroads have carfloat terminals in the borough, but shippers do not consign food products there because there is no market to dispose of them.

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Cars differ in dimensions and there is for each particular car a maximum weight-carrying capacity, beyond which that car must not be loaded. Depending only in part on the size of the car, and mostly upon

a mass of compromises, agreements, etc., between the shippers and the railroads and between the various railroads, there is, for each particular commodity, according to its classification a minimum car load, which is the least weight that can be transported exclusively on that trip of that car without additional payment for this privilege. Any quantity between the minimum carload and the maximum load for the car actually used can be shipped; and less than carloads can also be shipped thus exclusively as carloads by paying for the minimum carload weight at the rate to the destination for the particular commodity shipped.

In the very many cases where the scheduled fast freight line service is not available, goods have to be shipped by ordinary freight.

Goods may be shipped by rail in less than carload lots; by railroads or by train loads, and this by either ordinary or, where available, by fast freight line.

While whole train loads go through with generally only delays for change of engines and for a right of way along the tracks, cars, if not shipped by scheduled lines and if so destined as to require transference from one division to another or one road to another, have often to wait at junction points or switching yards for resorting and making up into trains.

Goods in less than carload lots shipped by ordinary freight may have, in addition to the above delays, those caused by making up out of the miscellaneous articles received from the various shippers a carload for the same destination, or, in lieu of a sufficiency for such destination, of a sufficiency for a convenient junction or switching point on the route toward that destination.

Goods in any quantity shipped by scheduled fast freight and goods in train loads seldom get lost; single cars get lost with considerable frequency, and stay lost sometimes for days at a time; less than car load shipments often fare worse.

A railroad, having once accepted goods as perishable, is liable for the damages which the goods can be proven to have sustained by delays beyond a reasonable time for transportation. The shipper will therefore suffer less loss if the goods are delayed sufficiently to be spoiled utterly than he will if, as is more often the case, they are damaged slightly, in which event it is often difficult to prove damage.

Transportation by express, with its widespreading combination of facility to forward expeditiously shipments of any size, large or small, from the producers nearest the express station to the commission man or receiver direct, would be the ideal way if it were not for the high charges usually made.

Foodstuffs by rail are generally shipped in box cars, which may be the ordinary box car with tight ends, roof, and floor and no ventilators, or it may be ventilated, or it may be a special car, like a refrigerator car, slat-sided, like a cattle car, etc.

Perishable or semi-perishable goods shipped in a tight box-car in even moderately warm weather may "heat", "sweat" and take considerable damage; shipped in hot weather they may easily spoil; shipped in very cold weather they may freeze and thus spoil. Transportation by refrigerator cars, which, by the use of ice in summer and by the ventilators provided in such cars, reduces loss, costs more.

Although non-perishable foodstuffs have always been carried

by the railroads, it was not until the refrigerator car was perfected that the carriage of perishables over long distances was made possible. We have become so accustomed to the use of goods brought from distant regions in refrigerator cars, that we do not realize how recently this traffic has developed, not what an important part the refrigerator car has played in making it possible. It has been an important factor in the agricultural and economic development of the country. It affords excellent means of supplying the city with perishables grown in any part of the country.

One of the constantly recurring problems in connection with the marketing of farm products is that of procuring an adequate supply of cars to move commodities without delay from producing sections. For some commodities, like butter and live stock which move with relative uniformity throughout the year, this problem is not so acute, but in the case of perishables, which must be moved without delay during their short ripening season, it is often difficult for railroads to furnish enough cars. In years gone by, when railroads were first being built, serious losses often occurred because of lack of equipment, and much dissatisfaction resulted from the discriminatory practices of railroads in favoring certain shippers. Conditions have been vastly improved in these respects. The interchange of freight cars among the various railways is a great benefit; the studying of crop conditions and planning ahead so as to have sufficient cars on hand have also relieved the situation; the private car lines, by shifting their cars from one part of the country to another as crops ripen in the various producing sections, have performed an important service in the movement of perishables. The whole problem

is rendered complex, first by the fact that the number of available cars varies greatly with general industrial conditions of the country, and second by the fact that the quantity of products raised varies greatly from year to year.

To facilitate the movement of cars, the railroads collect demurrage charges. The collection of demurrage was first inaugurated in the United States about 1887 by a few roads at badly congested terminals, but has now come to be applied on all roads and at all stations. Shippers or receivers are allowed "free time" of usually forty-eight hours to load or unload, but after the expiration of this period such shippers or receivers must pay demurrage (usually one dollar) for each twenty four hours or fraction thereof that a car is detained. Most of the states regulate demurrage on interstate traffic either by statute or through their railroad commissions, and demurrage on interstate traffic is regulated by the "National Car Demurrage Rules" or the "Uniform Code", as it is called, under the supervision of the Interstate Commerce Commission. Shippers have retaliated by having "reciprocal demurrage" adapted in several states, whereby the railroads themselves are penalized for failure to furnish cars within certain periods after they are ordered. Such rules have forced the railroads to provide larger numbers of cars, and have also prevented them from favoring certain heavy shippers at the expense of others.

Trolley Freight;----- An important development of recent years is the growth of interurban electric lines which are giving more and more attention to the carriage of freight. The future will see probably a great development of this kind of transportation, and adequate attention should be given to the carriage of freight---especially farm produce.

The features of trolley freight that make its possibilities loom up so large are:-

1. Frequent stops at small outlay, thus reducing the cost of of the farmers haul to station.
2. Lapping regions inadequately served by other carriers, thus placing many farmers several hours nearer the city's markets.
3. The ability to ship in smaller quantities than do the railroads (which are essentially carload-lot and wholesale distributors), thus giving a new avenue for marketing the surplus of small farmers and focusing attention upon the nature of the output of all farmers.
4. Farmers can market their goods in a fresher condition, thus giving the consumer better goods and the farmer better prices
5. It reaches sections of the city not reached by railroad terminals, thus making possible the distribution of food products to the needier sections of the large city and exactly to the market center in the small city.
6. It increases the facilities for getting the output of manufacturing establishments to railroad stations, and from the city to outlying suburbs and farmers thereby enhancing both urban and farm values.
7. It pays.

The forces by which prices on farm products are kept practically uniform throughout the United States and the commercial world are practically fourfold: first, the practice known as diversion of shipments; second, the comparatively low cost of transcontinental and of oceanic transportation; third, the use of cold storage; and, fourth, the methods used in arriving at market quotations on farm products.

Trolley freight is one of the newer agencies which may usher in a new era, characterized by adaptation of transportation and of farm output to local markets and local conditions.

Ocean Freight.----- Ocean transportation differs from railroad transportations in the following particulars: a large part of the traffic

has to be carried by steamers that do not run on regular schedules; ocean freight rates very frequently; and in the main, ocean freight rates are much lower than railroad rates for the same distance. The facts that ocean freighters do not run on regular schedules and that the rates constantly fluctuate present difficult problems to the exporter; he must engage space ahead in order to get transportation for his products, and he must have enough products to occupy the space engaged, or else stand a loss unless he can dispose of his space to some one else. Ship brokers act as middlemen in bringing vessel owners and exporters together.

That ocean rates are lower than rail rates is illustrated by the fact that while it costs from fifteen to eighteen cents per bushel to haul wheat from Kansas points to Galveston by rail, it cost only about six cents to carry it from Galveston to Liverpool by steamer. Wheat is taken from Portland, Oregon, to Liverpool by steamer at as low a rate as from Portland to Chicago by rail. A few years ago when the average rate on cotton to Savannah from points in Georgia, South Carolina, Florida, and eastern Alabama was forty-one cents per 100 lbs, the rate from Savannah to Liverpool was only thirty-three cents. The destinations of ocean freighters are often changed en route, just as carloads of perishables freight are diverted to the most promising market. A vessel will start under load for some convenient port, there to receive or await orders; the owners of the cargo in the meantime find a sale and cable orders to the vessel to proceed accordingly.

IV. PRICES---

Many elements go to make up the prices the consumers in the city pay for farm produce. Chief of these are-----

Costs of production,

Grading and packing,

Transportation,

Costs of selling by-----

Commission merchants and wholesalers,
Jobbers,
Retailers.

Regrading and repacking,

Trucking,

Storage,

Loss.

In general, the costs of production in recent years have increased. The trend of population toward the cities has lessened the available supply of farm labor. In many places where a few years ago farm labor could be had at \$2.25 a day farmers are now actually suffering for want of labor at \$2.50 a day. Cultivation has grown more intensive and the use of costly fertilizers has become common. Better fruits and vegetables are being produced to meet the growing demand for better quality, but often by costly methods that do not necessarily increase the quantity of production. The market to-day demands more careful grading, and transportation over great distances, more careful packing than formerly, all of which means added cost for labor.

The general wholesale price levels that prevail on most commodities are the result of a balance of forces over which the city has little control. The practice of large individual shippers and producers' Associations of shipping in carload lots and diverting shipments in transit to the most favorable markets, and the extended use of refrigeration

in storing surplus products, have tended to give stability to markets and to level up prices in all the large markets of the country.

Production, however, is hampered by a lack of good markets in the large cities. Even low prices are not so great a burden on the farmer as uncertainty of being able to market his goods. If the farmer can be sure of a market for his goods he will produce more and can afford to take a lower price, and still make more money than he did before. The lack of good markets tends, therefore, to keep out of the city, food-stuffs that might be consumed, and the lack of good distributing facilities in the city adds a large percentage of cost to the goods we receive. This percentage can be reduced by providing better facilities for wholesale distribution, and prices that extent lessened, while a larger percentage of what the consumer pays will be returned to the farmer.

The most expensive part of the distributing system is the retailing. Analysis of price increments from producer to consumer show the greatest percentage of increase to be between the wholesaler's price and the retailer's price. This means that the costs of distribution in this city are greater than the costs of getting the goods to the city, or that the means used are much less efficient, or both. His services are many times more complex and costly in themselves than the services of any of the other middlemen.

Every step toward better living conditions has its price and must be judged according to whether it is worth that price. Precautions for cleanliness, such as putting goods in packages, and wrapping fruit in tissue paper, and the convenience of having a multiplicity of small stores with their duplication of service, all mean increased cost, and, so long

as the public demands these things and pays the price, business will continue to provide them. If the retail dealer can find a market such as wholesale terminal market, where he can buy his goods cheaper, he will be able to sell them cheaper. Especially will this be so with the small dealers who now must keep horse and wagon to go to market. If they can have their goods delivered to them by automobile trucks from the market for a nominal charge one of their expenses will be lessened. Another cause of expense to the retail dealer is the fact that, while he deals mainly in a small number of articles, he often thinks it necessary to invest his capital in a large number of articles which remain on show in his store and are seldom bought. This is dead capital, which adds to his expense.

The greatest fault of the present retailing system is the inflexibility of prices. They fail to reflect the fluctuations of wholesale prices so greatly that the wholesale market may be glutted and goods be spoiling in the freight yards, and the retail prices through the city be scarcely depressed. This condition is due to many causes: A season of high prices will accustom the public to regard those prices as normal, with the result that they either cease to buy the article or view with suspicion goods marked at a lower figure. The public knows very little about wholesale prices, as they are not reported in a way to reach average consumers, consequently the demand for goods is not formed intelligently. The system of marketing goods through a long series of dealers tends toward rigidity in demand and price. Both jobber and retailer are cautious about buying more than their accustomed trade will move off, and will rather buy the usual quantity and hold it at a profitable than take the risk of buying freely when the market is low and working up a demand

for the goods.

Better markets that will put the retailer in direct touch with primary market conditions, together with greater publicity of wholesale prices, will undoubtedly make him and his trade more responsive to conditions of supply.

In most instances where prices have risen in the last ten years the cost of transportation has remained a constant factor. The cost of railroad transportation is not high, though rates on small lots are much higher and service slower than on carloads, and it does not add a large percentage to the cost of food.

The producer as well as the consumer is affected by the transportation systems. They have opened to him a large number of markets, to any one of which he may deliver promptly a carload of fresh fruits or vegetables and sell them usually at a fair price. The present day systems of fast freight service, has resulted, with the aid of other agencies, in giving the average household a greater variety of fresh fruits and vegetables and for longer seasons than would have been dreamed of twenty years ago. Fruits and vegetables "out of season" have long been obtainable, but formerly the prices were too high for any but the rich. To-day many such products, even throughout the winter, are sold at prices within the reach of a medium sized pocketbook.

The freight carried on many railroads is divided into classes based upon the kind of service rendered. The highest class of goods is given the quickest and most regular service. A second class of goods, and even a third or fourth may also be moved in trains having regular times for arrival and departure, but which are slower than the so called

"manifest", "red ball" or "vegetable express" trains.

Fresh fruits and vegetables are usually included in the list of commodities which are given this best service. Trains carrying these perishable products are run at greater rates of speed and with greater regularity than are ordinary freight trains.

The charges on fruits and vegetables over some of the longest routes may be illustrated by a few examples. Celery carried in carloads by rail from Sanford, Florida, to Phila. is charged at the rate of forty-seven cents a box. This is for shipments of at least three hundred and fifty crates carried in refrigerator cars. An additional charge of eighteen and one-half cents per box is made for refrigeration, making the total freight and refrigeration on a box amount to sixty-five and one-half cents, or possibly from one eighth to one quarter of its retail value. If the celery is shipped in ordinary ventilated cars and without refrigeration, four hundred and twenty boxes are required to make a carload and the average rate from Sanford to Phila. is only forty-one cents a box, and the freight may equal one-half to one seventh of what the consumer pays. The carload rate for oranges from Jacksonville to Phila. amounts, for average size fruit, to about three and one half cents a dozen; Florida cabbage from Jacksonville to Phila. is charged sixty-two cents per hundred pounds. The retail price of this early cabbage would possibly be five to ten or more times the freight charges. Early potatoes from Jacksonville to Phila are charged a carload rate of forty-seven cents per one hundred pounds, and the retail price would be probably ten or more times this charge. One peck of these potatoes would share in the freight charge to the amount of seven cents.

V Refrigeration.-----

The application of refrigeration to foodstuffs is, primarily, for conservation. The agents of decay, notably bacteria and enzymes, are hindered in their work of destruction by low temperatures. The freezing of certain commodities so retards chemical and bacterial changes that they are inappreciable. In other commodities the changes are not prevented, but they progress very slowly. Sometimes, as in the case of fruit and eggs, freezing would injure the article; then suitable temperatures above freezing are applied. Ordinarily, deteriorative changes progress more rapidly when "chilling" rather than "freezing" is resorted to, but, even so, we are enabled to preserve many articles from season to season which could not otherwise be saved for the use of the people by holding them at, or near 32° F.

The past twenty-five years have witnessed not only the advent of the refrigerated warehouse, but its development from inadequately insulated, wood-lined rooms to concrete constructed, well insulated buildings maintaining temperatures that do not vary more than two or three degrees from year to year. Scrupulous cleanliness is maintained, also. The moisture in the air is regulated as well as the temperature, and great care is exercised to prevent odors. Most of the warehouses are provided with railroad sidings---hence the objection---able warming or sweating of refrigerated products when unloaded in the yards, or on docks, is prevented. If the commodities are to be preserved hard frozen they are placed immediately in rooms wherein the temperatures fall between--- 5° F. and 10° F., or even lower, as in the case of butter or fish. If they are to be "chilled", as in the case of eggs, the room is cooled to 29°F. to 31° F. Separate rooms are provided for eggs, apples, vegetables,

etc., because of conflicting flavors.

When the owners of the produce remove it, generally to the wholesale merchants, it may or may not be well treated, depending upon whether the establishment is or is not equipped with refrigeration. Almost invariably cold stored products are abused after leaving the wholesaler. The consumer pays the price of the loss by decay, and, ultimately, the producer suffers because of the disrepute in which the goods are held in the home of the consumer.

The public cold storage warehouse men do not own directly or indirectly the goods stored, and their customers number many thousands of independent producers, shippers, commission merchants, and dealers in the products stored, representing every section of the country. There never has been and could not be any combination or control whatever to regulate supplies and prices or produce a corner in these articles.

As to the effect of cold storage on prices, the prices are governed by the trade law of supply and demand, which is operative as to stored goods as well as to other merchandise, and a study of market prices will demonstrate this fact. Cold storage facilities stimulate production, increase the volume of perishable goods, extend the period of consumption, and result in lower average prices to the public.

As to the effect of cold storage on health, it is not detrimental. The modern cold storage warehouse has reached a high state of scientific development, and the sanitary, physical, and thermal conditions are, as they should be, of the highest order. The quality of goods in the warehouses depends upon their condition when placed in storage rather than upon the length of time the goods are carried. As a matter of fact the goods offered for storage are generally of the best quality and condition,

as it is commercially unprofitable to store other kinds. Such goods may be carried in a wholesome state, as determined by scientific experiment and practical expert knowledge, at least from one season to the next, twelve months later.

VI. Grading and Packing.

Producers do not realize how important the subject of grading and packing is and how much it means to them in the handling and selling of their fruit. A brief set of rules for the grading and packing of some of the produce raised on the average truck farm should prove valuable.

STRAWBERRIES.-----These should be packed in standard quarts only and in ventilated containers of 32 quarts, 48 quarts, or 60 quarts. Baskets should be properly filled and rounded off and a few green leaves on the berries often afford some protection when the covers are closed down on the containers and lend a fresher appearance to the same on arrival in market. If possible, these should be loaded at all times in refrigerator cars, and cars should be iced and thoroughly cooled at least ten hours before loading in order that a proper temperature may be maintained in the car after the same is loaded. It must be recognized that the natural heat in a berry when loaded in a refrigerator car usually runs the temperature up to a point where the process of refrigeration is not taking place, and for this reason the car should be thoroughly cooled before loading in order that a proper temperature may be maintained after the same is loaded. Care should also be exercised to see that crates, when loading, are properly braced to prevent the shifting of the load when car leaves the station.

CANTALOUPEES.-----The best package that can be employed for the use of cantaloupes is the standard slatted crate. This is a crate of the

dimensions 12 x 12 in the heads, and 24 inches in length, the heads being made of solid veneer and the sides being covered with $2\frac{1}{2}$ inch slats with air space of about three quarters of an inch between the slats.

Cantaloupes should also be selected as to size and usually packed 36, 45, or 54 to the standard crate, according to their size, same being uniform. Care should also be exercised not to pack a cantaloupe before the same is properly matured and becomes free from the vine, and the same should be well netted. Over-ripe cantaloupes should not be packed at all, or, if intended for nearby markets, should be separated from the other cantaloupes and packed in crates as "Ripe" by themselves, but never mixed with the firm stock.

CABBAGE.----The cabbage shipped from Southern points in the early spring is usually crated in barrel crates, and should be solidly packed, and all soft and spongy heads eliminated. During the fall and winter months, cabbage may be shipped either in cattle cars or later, in cold weather, in refrigerator cars, packed loose in the cars, but during the warm or summer months should be crated and usually shipped in refrigerator cars to prevent deterioration. Care should also be exercised in not mixing varieties. As an illustration, Wakefield and Flat Dutch should not be mixed, nor should Domestic and Danish seed cabbage be mixed, nor should Red and White cabbage be mixed, each selling best if graded by itself.

GREEN PEAS and STRING BEANS.--should never be packed following a rain and when filled with moisture, as they ferment, heat and deteriorate in transit, but should be packed cold and packed in bushel hampers, and care should be exercised to see that the hampers are well filled and

packed down, otherwise, with the natural evaporation that takes place in transit, they arrive in market in a slack state which militates against their sale and causes low prices.

Care should also be exercised in not packing either beans or peas until they are properly matured, and equal care not to permit them to become overgrown or over matured, either of which faults will result in low prices.

TOMATOES.---With the exception of nearby points where the bushel crate is used, the most desirable container for tomatoes is the 6 basket carrier. Tomatoes should also be separated as to size and packed in these containers: 72,96,108,120,144, or 188 to the crate. Care should be exercised not to pack a tomato too green or immature, or one which will never ripen, or an over-ripe tomato, and care should also be exercised never to pack a ripe and a green tomato in the same carrier, but rather separate them, marking the crates as to their condition and maturity. Misshapen or split tomatoes or those containing other imperfections should be rejected and never shipped, as they only injure the sale of the good tomato. During the warm season it is advisable to ship these under refrigeration, as they carry better in this way.

CELERY.---This should be properly bleached before shipment, and carries best in the 12 inch Florida celery crate with a separation made as to the sizes of the stalks, being packed accordingly, either 6,8, 10, or 12 dozen to the crate, and in some instances larger.

LETTUCE.--Too frequently the mistake is made on the part of shippers in forcing lettuce into market before it is thoroughly matured and well headed, and very often well-headed lettuce in a green state or before the same has begun to turn white at the heart is forced into

market and is sold at low prices.

Care should be exercised to see that lettuce is well headed and the same is thoroughly dry before packing, and lettuce should never be packed except with the faces of the heads towards each other. Frequently the mistake is made of packing the butt end of one head of lettuce on the face of the lower head, with a result that this butt bruises the face of the lower head of lettuce and causes decay and deterioration. The half barrel hamper has been found to be the best package for the carrying of lettuce and the same should be solidly packed, and wherever possible, unless to nearby markets, shipped under refrigeration in order to insure its carrying in good condition.

POTATOES.---During the early spring months potatoes are usually shipped in double-headed barrels or burlap bags, the purpose of using these barrels being to prevent bruising due to the tenderness of the skin of the potato. These should also be graded into three sizes: fancy, bright and seconds, according to their size. Later in the season, when stock is thoroughly matured and the skin is firmly set on the potato, the same may be shipped in sacks containing 11 pecks or 167 lbs. net, to the bag, but this should never be done during the early part of the season and when the skin is thoroughly set on the potato.